



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,191	12/16/2004	Andrew Mark Wynn	M8540-307930	5603
23370	7590	05/16/2007	EXAMINER	
JOHN S. PRATT, ESQ			KEMMERLE III, RUSSELL J	
KILPATRICK STOCKTON, LLP				
1100 PEACHTREE STREET			ART UNIT	PAPER NUMBER
ATLANTA, GA 30309			1731	
			MAIL DATE	DELIVERY MODE
			05/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,191	WYNN ET AL.	
	Examiner Russell J. Kemmerle	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 December 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-47 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-47 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 16 December 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 15-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Vezza (US Patent 5,972,102).

Vezza discloses a method of making a refractory which involves creating a mixture of a refractory aggregate and fines (i.e., a ceramic powder) with a binder and other additives along with water. This mixture is then shaped (for example by vibration casting), dried to remove water, and then sintered to form a final product (Col 2 line 64-Col 3 line 25). Specifically mentioned is the use of silicon carbide (SiC) as a suitable refractory for use in the mixture (Col 3 lines 60-63).

Vezza further discloses that the mixture further contain a dispersant, preferably sodium polyacrylate polymer, in an amount of up to about 0.25 wt% (Col 5 lines 34-53). Sodium polyacrylate is mentioned by the applicant as a preferred composition for a hygroscopic polymer additive (current specification page 19, line 7), and it is thus assumed that sodium polyacrylate would exhibit an absorbency of more than 200 grams of water per gram of material.

Thus, Vezza discloses every limitation of claims 1-8 and 15-23, and thus anticipates the claims.

Claims 42-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Matalon (US Patent 5,240,498)

Matalon teaches a method of forming a ceramic article that involves molding a green body, and sintering the green body to form the final piece. Matalon further discloses the use of a carbonizable binder which leaves a carbon residue in the product after firing at high temperatures (Col 1 lines 32-50).

Matalon specifically discloses that the carbonizable binder be a mixture of a sugar and another carbonaceous additive, such as carbon black or a starch (Col 3 lines 51-66). Matalon further discloses the use of a sugar syrup which preferably has a solids content of about 70-98wt% (Col 5 lines 9-15). This would inherently produce a binder with a carbon yield of greater than 20%, as discussed in the instant specification.

Referring to claims 46 and 47, since ash is never mentioned as a component of the binder in Matalon, it is assumed to not be present or to be present in an insignificant amount (i.e., less than 1%).

Thus, Matalon discloses every limitation of claims 42-46, and thus anticipates the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vezza.

Vezza is relied upon as discussed above, but does not specifically disclose that the polymer be in the form of a fine powder (at least 75wt% has a size of less than 150 μ m), or that the ceramic body formed of SiC be a crucible.

While Vezza does not disclose the size of polymer powder to be used, it is well known to use fine particle powders in making a ceramic mixture, and Vezza even uses several materials having a small particle size. It would have been obvious to one of

ordinary skill in the art, at the time of invention by applicant, to use a polymer powder where at least 75wt% has a size of less than 150 μm since the smaller particle size would allow the powder to more easily dissolve in the water.

Claims 10-14, 25-27 and 29-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vezza in view of Matalon.

Vezza is relied upon as discussed above, but does not disclose the use of a carbonizable binder as a component of the ceramic mixture, or the other specific limitations of the carbonizable binder as recited in claims 10-12, 25-27, 29 and 35-41.

Matalon is relied upon as discussed above for teaching a carbonaceous binder that is sugar based, and optionally further includes a starch. As discussed above, Matalon teaches using a sugar syrup with a solids content of about 70-98%, which would inherently produce a carbon yield of greater than 20%, as well as a carbon content in the syrup of greater than 15wt%.

Matalon discloses the use of SiC as a ceramic to be used with the carbonaceous binder as discussed above, and further discloses that the ceramic material include graphite (Col 6 lines 31-32).

It would have been obvious to one of ordinary skill in the art to combine the method of making a ceramic product using a hygroscopic polymer as a dispersant as taught by Vezza with the use of a carbonaceous binder as taught by Matalon. This would have been obvious because the both discuss the use of SiC as a ceramic starting material, and Matalon discloses that by using a carbonaceous binder a stronger and more resistant product is produced (Col 1 lines 45-50).

Referring to claim 14, while neither Vezza or Matalon disclose the use of the materials to create a crucible, ceramic crucibles are very well known in the art, and it would have been obvious to one of ordinary skill in the art that the material and process taught by Vezza in view of Matalon could be used to create many shapes, including a crucible.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell J. Kemmerle whose telephone number is 571-272-6509. The examiner can normally be reached on Monday through Friday, 8:30-4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

Application/Control Number: 10/518,191
Art Unit: 1731

Page 7

RJK